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Ron Walker

HVAC Training – Low System Charge R22 TXV

by Ron Walker

Here is a quick guide to help you diagnose and recognize a under charged, R22 HVAC system, with a [TXV](#).

Low System Charge – R22 TXV

A system low on charge will have:

- Lowered cooling capacity.
- Lowered efficiency.
- A hot compressor motor

Causes:

- Leaking system usually due to poor installation.
- Not properly charged by the installer or the previous technician.

Symptoms:

- Pressures will be running lower than specified on the charging chart of the equipment.
- The superheat may be normal; in most cases the TXV will open enough to maintain the specified superheat.
- The subcooling will be very low (meaning a small amount of subcooling).
- The compressor will be running hot due to the lack of refrigerant to cool the motor.
- Depending on how low the system charge is, the indoor coil may be iced and there may not be enough refrigerant for the TXV to maintain the proper superheat and the superheat may be high.

Corrective Action:

- If the system charge is slightly low, use proper charging procedures to bring the charge up to the levels as specified on the equipment's charging chart.
- Inform the customer that if the situation happens again, you will have to perform a leak test and repair the leak. Please note: There are many times when the leak is in a place that cannot be repaired.
- If the system charge is very low, leak test the system, repair the leak, and use proper charging procedures to bring the charge up to the levels as specified on the equipment's charging chart.

ABOUT THE AUTHOR

Ron Walker

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After retiring from the U.S. Marines and achieving his B.S. degree, Ron Walker entered the HVAC field. He has been an HVAC technician, service manager, and business owner. Working as a service manager, he spent many years training HVAC technicians to be more technically competent and really understand their trade. His passion for teaching and helping others resulted in the creation of HVAC Training Solutions, LLC.

HVAC Training Solutions, LLC, 4475 U.S. 1 South #607, St. Augustine, FL 32086, (904) 671-7144

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